

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. **(Currently Amended)** A method of measuring transmission quality of multimedia data, comprising the steps of:

(a) a transmitter transmitting multimedia data, based on reference multimedia data, through a forward channel to a receiver;

(b) the transmitter receiving, through a return channel, transmission error information on errors occurring during the multimedia data transmission to the receiver;

(c) estimating, at the transmitter, multimedia data received by the receiver using the received transmission error information and the transmitted multimedia data; ~~and;~~

(d) measuring, at the transmitter, a transmission quality of the multimedia data received by the receiver by comparing the estimated received multimedia data with the reference multimedia data; and

(e) performing at least one of the operations of terminating video transmission, increasing the channel bandwidth, and switching from one CODEC to another depending on evaluation results of transmission quality.

2. (Previously Presented) The method according to claim 1, wherein the step (b) is performed only when a transmission error of the transmitted multimedia data is detected.

3. (Previously Presented) The method according to claim 1, further comprising applying an error concealment technique to the received multimedia data.

4. (Previously Presented) The method according to claim 3, further comprising the transmitter receiving error concealment technique information through the return channel.

5-6. (Canceled).

7. (Previously Presented) The method according to claim 1, wherein in step (d), the reference data is obtained by decoding the transmitted multimedia data.

8. (Canceled).

9. (Previously Presented) The method according to claim 1, wherein measuring the transmission quality uses any one of a full-reference method, a reduced-reference method, and a no reference method.

10. (Previously Presented) The method according to claim 1, further comprises:

(e) selectively maintaining or changing a transmission state of the multimedia data through the channel after measuring the transmission quality.

11. (Previously Presented) The method according to claim 10, wherein the step (e) includes changing the transmission state by performing at least one of operations of terminating video transmission, increasing the channel bandwidth, employing an error correction technique, and switching from one CODEC to another CODEC depending on evaluation results of transmission quality.

12. **(Currently Amended)** An apparatus for measuring transmission quality of multimedia data, comprising:

a transmitter for transmitting multimedia data based on reference multimedia data through a forward channel to a receiver, wherein the transmitter comprises:

an encoding unit for encoding source multimedia data to encoded multimedia data,

a received video estimation unit for receiving, on a return channel, transmission error information on received multimedia data, and estimating the received multimedia data using the received transmission error information and the transmitted multimedia data, and

an evaluation unit for evaluating the transmission quality of the received multimedia data by comparing the estimated received multimedia data with the reference multimedia data; and

a control unit for performing at least one of the operations of terminating video transmission, increasing the channel bandwidth, and switching from one CODEC to another depending on evaluation results of transmission quality.

13. (Previously Presented) The apparatus according to claim 12, wherein the received video estimation unit is configured to receive error information only when an error occurs in the forward channel.

14. (Previously Presented) The apparatus according to claim 12, further comprising a receiver configured to receive the transmitted multimedia data, the receiver including means for compensating errors by applying an error concealment technique to the received multimedia data.

15. (Previously Presented) The apparatus according to claim 14, wherein the receiver is configured to transmit information on the error concealment technique and the transmission error information to the transmitter through the return channel.

16-17. (Canceled).

18. (Original) The apparatus according to claim 12, wherein the reference data is the transmitted multimedia data.

19. (Previously Presented) The apparatus according to claim 12, wherein the evaluation unit is configured to evaluate the transmission quality using any one of a full-reference method, a reduced-reference method, and a no reference method.

20. (Previously Presented) The apparatus according to claim 12, wherein the transmitter further comprises:

a control unit for selectively maintaining or changing a transmission state of the multimedia data through the forward channel depending on an evaluation result of transmission quality.

21. (Previously Presented) The apparatus according to claim 20, wherein the control unit is configured to perform at least one of terminating video transmission and increasing the channel bandwidth, depending on the evaluation result.

22. (Previously Presented) The apparatus according to claim 20, wherein the encoding unit is configured to perform at least one of applying an error correction technique and switching from one CODEC to another CODEC depending on the evaluation result.

23. **(Currently Amended)** A method of measuring transmission quality of multimedia data, comprising the steps of:

(a) transmitting multimedia data, based upon reference multimedia data, through a channel by a transmitter to a receiver;

(b) extracting a set of parameters from a video segment of received multimedia data affected by transmission errors;

(c) transmitting the extracted set of parameters to the transmitter through a return channel; and

~~(e) measuring~~(d) measuring, at the transmitter, a transmission quality by using the set of parameters and the reference multimedia data; and

(e) performing at least one of the operations of terminating video transmission, increasing the channel bandwidth, and switching from one CODEC to another depending on evaluation results of transmission quality.

24. **(Currently Amended)** An apparatus for measuring transmission quality of multimedia data, comprising:

a transmitter for transmitting multimedia data, based on reference multimedia data, through a channel; and

a receiver for:

receiving the transmitted multimedia data,

detecting transmission errors in the transmitted multimedia data,

extracting a set of parameters from a video segment affected by the transmission errors, and

transmitting the set of parameters through a return channel to the transmitter,

wherein the transmitter comprises:

an encoding unit for encoding source multimedia data to encoded multimedia data, and

an evaluation unit for evaluating a transmission quality of the received multimedia data using the set of parameters and the reference multimedia data; and

a control unit for performing at least one of the operations of terminating video transmission, increasing the channel bandwidth, and switching from one CODEC to another depending on evaluation results of transmission quality.